

What is claimed is:

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1. A method for operating a cardiac pacemaker, comprising:
sensing atrial depolarizations through an atrial sensing channel and generating
5 atrial sense signals in accordance therewith;
sensing ventricular depolarizations through one or more ventricular sensing
channels and generating ventricular sense signals in accordance therewith;
pacing a ventricle in accordance with a particular primary pacing mode; and,
switching the pacemaker to an atrial fibrillation pacing mode upon detection of an
10 atrial tachyarrhythmia, wherein the atrial fibrillation mode includes ventricular
resynchronization pacing.
 2. The method of claim 1 wherein the pacemaker is normally operated in a primary
pacing mode that includes atrial-triggered ventricular pacing, and wherein switching to an
15 atrial fibrillation mode includes reverting to a non-atrial triggered ventricular pacing
mode.
 3. The method of claim 1 wherein the atrial fibrillation mode includes ventricular
rate regularization.
 - 20 4. The method of claim 3 wherein the ventricular resynchronization pacing is
delivered in a biventricular inhibited demand mode with a selected biventricular offset
interval.
 - 25 5. The method of claim 3 wherein the resynchronization pacing is delivered in a
biventricular triggered mode, where a sense in one ventricle triggers a pace to the other
ventricle.
 6. The method of claim 3 wherein the resynchronization pacing is delivered in a left
30 ventricle-only pacing mode.

7. The method of claim 1 wherein the ventricular resynchronization pacing in the primary pacing mode is different from the ventricular resynchronization pacing in the atrial fibrillation mode.

8. The method of claim 1 wherein the primary pacing mode that is switched from upon detection of an atrial tachyarrhythmia includes biventricular inhibited demand pacing and further wherein switching to the atrial fibrillation mode includes adjusting a biventricular offset interval.

9. The method of claim 1 wherein the primary pacing mode that is switched from upon detection of an atrial tachyarrhythmia includes LV-only pacing and further wherein the atrial fibrillation mode includes biventricular inhibited demand pacing.

10. The method of claim 1 wherein the primary pacing mode that is switched from upon detection of an atrial tachyarrhythmia includes biventricular triggered pacing and further wherein the atrial fibrillation mode includes biventricular inhibited demand pacing.

11. The method of claim 1 wherein the primary pacing mode that is switched from upon detection of an atrial tachyarrhythmia includes rate-adaptive pacing and further wherein the atrial fibrillation mode includes an adjustment to a rate-adaptive parameter.

12. The method of claim 1 wherein the primary pacing mode that is switched from upon detection of an atrial tachyarrhythmia is non-rate-adaptive and the atrial fibrillation mode is rate-adaptive.

13. A method for operating a cardiac pacemaker, comprising:
sensing atrial depolarizations through an atrial sensing channel and generating atrial sense signals in accordance therewith;
sensing ventricular depolarizations through one or more ventricular sensing channels and generating ventricular sense signals in accordance therewith;

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5 pacing a ventricle in accordance with a particular bradycardia pacing mode; and,
switching the pacemaker to an atrial fibrillation pacing mode upon detection of an
atrial tachyarrhythmia, wherein the atrial fibrillation mode includes ventricular
resynchronization pacing.

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14. The method of claim 13 wherein the pacemaker is normally operated in a primary
pacing mode that includes atrial-triggered ventricular pacing, and wherein switching to an
atrial fibrillation mode includes reverting to a non-atrial triggered ventricular pacing
mode.

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15. The method of claim 13 wherein the atrial fibrillation mode further includes
ventricular rate regularization pacing.

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16. The method of claim 13 wherein the ventricular resynchronization pacing is
delivered in a left ventricle-only pacing mode.

17. The method of claim 13 wherein the primary pacing mode includes ventricular
resynchronization pacing.

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Bradycardia 18. The method of claim 17 wherein the ventricular resynchronization pacing in the
(primary pacing) mode is different from the ventricular resynchronization pacing in the
atrial fibrillation mode.

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19. The method of claim 13 wherein the ventricular resynchronization pacing is
delivered in a biventricular inhibited demand mode with a selected biventricular offset
interval.

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20. The method of claim 13 wherein the ventricular resynchronization pacing is
delivered in a biventricular triggered mode, where a sense in one ventricle triggers a pace
to the other ventricle.

21. The method of claim 13 wherein the primary pacing mode that is switched from upon detection of an atrial tachyarrhythmia includes biventricular inhibited demand pacing and further wherein switching to the atrial fibrillation mode includes adjusting a biventricular offset interval.

22. The method of claim 13 wherein the primary pacing mode that is switched from upon detection of an atrial tachyarrhythmia includes LV-only pacing and further wherein the atrial fibrillation mode includes biventricular inhibited demand pacing.

23. The method of claim 13 wherein the primary pacing mode that is switched from upon detection of an atrial tachyarrhythmia includes biventricular triggered pacing and further wherein the atrial fibrillation mode includes biventricular inhibited demand pacing.

24. The method of claim 13 wherein the primary pacing mode that is switched from upon detection of an atrial tachyarrhythmia includes rate-adaptive pacing and further wherein the atrial fibrillation mode includes an adjustment to a rate-adaptive parameter.

25. The method of claim 13 wherein the primary pacing mode that is switched from upon detection of an atrial tachyarrhythmia is non-rate-adaptive and the atrial fibrillation mode is rate-adaptive.

26. A cardiac pacemaker, comprising:
 an atrial sensing channel for sensing atrial depolarizations and generating atrial sense signals in accordance therewith;
 right and left ventricular sensing channels for sensing right and left ventricular depolarizations and generating ventricular sense signals in accordance therewith;
 right and left pacing channels for delivering paces to the right and left ventricles;
 a controller for controlling the delivery of paces in accordance with a primary pacing mode; and,

wherein the controller is configured to switch the pacemaker to an atrial fibrillation pacing mode upon detection of an atrial tachyarrhythmia, wherein the atrial fibrillation pacing mode includes a ventricular rate regularization pacing mode.

- 5 27. The pacemaker of claim 26 wherein the atrial fibrillation pacing mode includes a ventricular resynchronization pacing mode.

28. A cardiac pacemaker, comprising:
an atrial sensing channel for sensing atrial depolarizations and generating atrial
10 sense signals in accordance therewith;
right and left ventricular sensing channels for sensing right and left ventricular
depolarizations and generating ventricular sense signals in accordance therewith;
right and left pacing channels for delivering paces to the right and left ventricles;
a controller for controlling the delivery of paces in accordance with a primary
15 pacing mode; and,

wherein the controller is configured to switch the pacemaker to an atrial fibrillation pacing mode upon detection of an atrial tachyarrhythmia, wherein the atrial fibrillation pacing mode includes a ventricular resynchronization pacing mode.

- 20 29. The pacemaker of claim 28 wherein the primary pacing mode includes a ventricular resynchronization pacing mode different from that included in the atrial fibrillation pacing mode.